by SHAWN P. CAHILL, PhD, and KRISTIN PONTOSKI, BA

Dr. Cahill is Assistant Professor of Psychology in Psychiatry and Ms. Pontoski is a Research Assistant—Both from University of Pennsylvania, Philadelphia, Pennsylvania.

Post-Traumatic Stress Disorder *and* Acute Stress Disorder I

ADDRESS FOR CORRESPONDENCE:
Shawn P. Cahill, PhD, Center for the Treatment and Study of Anxiety
3535 Market St., 6th Floor, Philadelphia, PA 19104
Phone: (215) 746-3327; Fax: (215) 746-3311;
E-mail: scahill@mail.med.upenn.edu

Their Nature *and* Assessment Considerations

POST-TRAUMATIC STRESS DISORDER (PTSD) is a common and often chronic and disabling anxiety disorder that can develop after exposure to highly stressful events characterized by actual or threatened harm to the self or others. This is the first of two articles summarizing the nature and treatment of PTSD and the associated condition of acute stress disorder (ASD). The present article presents the diagnostic criteria for PTSD and ASD, summarizes the epidemiology of exposure to trauma and resulting PTSD/ASD, discusses implications of these data for assessment and treatment, and provides a summary of several useful assessment instruments. A companion paper to be published in a future issue of *Psychiatry 2005* will provide a summary of empirically supported treatments, both psychological and pharmacological, for PTSD and ASD.

PILOT PRAYING AFTER PLANE CRASH
U.S. Navy photo courtesy of GeekPhilosopher.com.

INTRODUCTION

This is the first of two companion papers on the topic of posttraumatic stress disorder (PTSD) and acute stress disorder (ASD). In this first paper, we focus on issues related to the nature of PTSD and ASD and the implications for clinical assessment. In the second paper, scheduled to appear in a subsequent issue of *Psychiatry 2005*, we will address issues related to the prevention and treatment of ASD and chronic PTSD.

DEFINITION OF TRAUMA AND DIAGNOSTIC CRITERIA FOR PTSD

PTSD is an often severe, chronic, and disabling anxiety disorder that can develop following exposure to a traumatic event. It was first introduced into the DSM classification system with DSM III,[1] which defined a traumatic event as an event that is "generally outside the range of usual human experience" and would "evoke significant symptoms of distress in most everyone." The DSM III-R[2] maintained this definition and provided several examples of events that would qualify as a traumatic event, such as a serious threat to one's life or physical integrity; serious threat or harm to one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been or is being seriously injured or killed as the result of an accident or physical violence.

The definition of trauma underwent substantial changes with DSM-IV[3] taking into account epidemiological data (presented in greater detail later in this article) demonstrating that many of the kinds of events listed in the DSM-III-R definition as examples of traumas were relatively common and not necessarily "outside the range of usual human experience." In addition, research suggests the individual's subjective reaction to the event (as opposed to how "most" people would react) is as important a determinant in who develops PTSD as the objective characteristics of the event.[4] For an event to qualify as a trauma according to DSM-IV[3] requires both the objective criterion (A1) that person has "experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or threat to the physical integrity of self or others" and the subjective criterion (A2) that "the person's response involved intense fear, helplessness, or horror" be met.

Following exposure to a traumatic event, the person must also experience at least one of five (Cluster B) symptoms of reexperiencing the trauma (recurrent and intrusive distressing recollections, nightmares, flashbacks, intense psychological distress in response to memories or reminders of the trauma, and physiological arousal cued by memories or reminders of the trauma); three or more of seven (Cluster C) symptoms of persistent avoidance (of memories or reminders of the trauma) and emotional numbing (dissociative or psychogenic amnesia for important parts of the trauma, loss of interest in important activities, feelings of detachment or estrangement from others, restricted range of affect, and a sense of a foreshortened future); and two or more (Cluster D) symptoms of increased arousal (sleep difficulties, irritability or outbursts of anger, concentration difficulties, hypervigilance, and an exaggerated startle response).

The B, C, and D symptoms must develop in the wake of the traumatic event, persist for at least one month (Criterion E), and cause clinically significant distress or impairment (Criterion F). By convention, PTSD with symptoms lasting 1 to 3 months is designated as acute, whereas PTSD with symptoms lasting more than three months is designated as chronic. Technically, DSM-IV permits the specification of PTSD with delayed onset, in which symptoms do not develop until at least six months following exposure to the trauma, although such delayed onset is statistically quite rare.

EPIDEMIOLOGY AND THE NATURAL HISTORY OF TRAUMA REACTIONS

Epidemiological studies indicate that exposure to potentially traumatic events (i.e., an event that would meet DSM-IV Criterion A1) is common in the general population and that PTSD is one of the most prevalent anxiety disorders. For example, the National Comorbidity Survey (NCS[5]), a large-scale (*N*=5,877) nationally representative epidemiological study of psychiatric disorders in the United States, found the majority of respondents had experienced one or more potentially traumatic events, with men (60.7%) being more likely to be exposed than women (51.2%). Not only was exposure to potentially traumatic events common in the NCS sample, but among those participants who were exposed to at least one potentially traumatic event, 56.3 percent of the men and 48.7 percent of the women experienced at least two potentially traumatic events and 16.8 percent of the men and 12.4 percent of the women reported experiencing four or more potentially traumatic events. The overall lifetime prevalence of PTSD in the NCS was 7.8 percent. Despite the higher rate of trauma exposure among men, lifetime PTSD was twice as common among women (10.4%) than men (5.0%).

The high rates of exposure to potentially traumatic events (60%) compared with the substantially lower rates of PTSD (approximately 8%) illustrate another important point: The majority of individuals who experience a potentially traumatic event do not develop PTSD. In other words, while exposure to

a potentially traumatic experience is necessary for the development of PTSD, it is not sufficient. One major reason is that not all potentially traumatic events are equally associated with the development of PTSD, with some of the most commonly experienced events being among the least likely to be associated with the development of PTSD. For example, again from the NCS, lifetime prevalence of being in an accident, natural disaster or fire, and witnessing someone badly injured or killed (prevalence rates ranging between 14–36%, depending on gender and the specific event) are all greater than the prevalence of being raped (less than 1% for men and approximately 9% for women). However, among individuals experiencing these different events, prevalence of PTSD related to rape was 46 percent for men and 65 percent for women, compared to less than 10 percent for each of being in an accident, natural disaster or fire, and witnessing someone badly injured or killed for both men and women.

A second major reason is that most reactions to potentially traumatic events, even those most likely to be associated with PTSD, such as rape, are transient and resolve within 4 to 12 weeks after the event. For example, Rothbaum, et al.,[6] longitudinally followed female rape victims and evaluated them weekly for the presence and severity of PTSD symptoms. At the first assessment, approximately 12 days after the assault, 94 percent met full symptom criteria, but not the duration criterion, for PTSD. By the fourth assessment occurring approximately one month after the assault, the point at which participants could formally be diagnosed with PTSD, 64 percent met full criteria for acute PTSD. By the final assessment, approximately three months after the assault, 47 percent met criteria for chronic PTSD. Thus, the majority of people exposed to a traumatic event and who experience immediate symptoms of PTSD experience natural recovery from their symptoms within 1 to 3 months of the event, although the rate at which symptoms decline decreases over time so that by three-months post-trauma, individuals with PTSD are likely to remain symptomatic without appropriate treatment (to be reviewed in a future companion article). These and similar data provide support for the utility of the current convention of not diagnosing PTSD in the first month following the event, as high symptoms in the immediate aftermath of a potentially traumatic event can be normative, and for differentiating between acute and chronic PTSD, as those who still have PTSD three months after the trauma are not likely to experience recovery in the absence of treatment.

In addition to the type of trauma and sex of the victim, several other factors have been identified as predictors of the development of PTSD. For example, in the National Women's Survey, a large-scale (*N*=4,008) nationally representative epidemiological study of trauma and PTSD in the United States, fear of being killed or injured that is experienced during a criminal victimization and actual receipt of physical injury during the crime each separately increased the likelihood of having a lifetime diagnosis of PTSD.[4] Women who neither experienced fear of injury/death nor received injury had a lifetime PTSD prevalence of 19 percent, compared to between 27 and 30 percent when one of these factors was present, and 45 percent when both were present. In a recent meta-analysis of risk factors for PTSD, Brewin and colleagues[7] found the largest effect sizes for severity of the trauma, lack of social support following the trauma, and life stress following the trauma, although the magnitude of the effect sizes varied substantially across studies. Smaller but more consistent effects were found for personal psychiatric history (see also section below on comorbidity), family psychiatric history, and personal history of abuse in childhood.

Several recent investigations have attempted to identify biological markers or risk factors for the development of PTSD, with the two most promising being low cortisol levels in the acute aftermath of the trauma and elevated resting heart rate shortly after the trauma. Yehuda[8] has proposed a model that implicates dysregulation of the H-P-A axis in PTSD. Specifically, exposure to a stressful event

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results in activation of the hypothalamus, resulting in the release of corticotropine-releasing factor (CRF) that then stimulates the pituitary gland to release adrenocorticotrophic hormone (ACTH), which in turn stimulates the adrenal gland to release cortisol. Cortisol then feeds back onto the hypothalamus and pituitary gland to inhibit further activity. Thus, cortisol serves to contain the H-P-A stress response. An implication of the theory is that low levels of cortisol at the time of a trauma will result in a stronger and more sustained stress reaction, which is hypothesized to contribute to the development of PTSD. Consistent with this hypothesis, Delahanty and colleagues[9] found that urinary cortisol levels obtained upon admission to the hospital in motor vehicle accident survivors was significantly lower among subjects who were found to have PTSD one month after the trauma than among subjects who did not develop PTSD. Hierarchical regression analyses further revealed a significant correlation between cortisol levels and PTSD symptom severity even after controlling for prior history of PTSD and injury severity caused by the recent accident. Additional evidence that intensity of the biological stress response to the traumatic event is predictive of the development of PTSD is provided by Shalev, et al.,[10] who found that trauma survivors who met criteria for PTSD four months after the trauma had exhibited significantly higher heart rate (by approximately 12 beats per minute) upon admission to the emergency than survivors who did not.

This brief summary illustrates that there are a number of known predictors or risk factors for the development of PTSD. However, to date, none of these factors, either alone or in combination, has emerged as a practical method with adequate sensitivity and specificity to serve as a guide to identify those individuals most in need of early intervention to prevent the development of chronic PTSD. At present, perhaps the best candidate for that function is the diagnosis of acute stress disorder (ASD).

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ACUTE STRESS DISORDER (ASD) AND ITS RELATIONSHIP TO PTSD

The diagnosis of ASD was first introduced into the fourth edition of the DSM[3] with the purpose of predicting which trauma survivors would not likely experience natural recovery over time so that such patients could be treated appropriately. An emphasis was placed on dissociative responses occurring at the time of the trauma or shortly thereafter based on the trauma survivors who restrict their awareness of the traumatic event and the resulting emotions actually impede their ability to process these emotions and thereby impede natural recovery.[11] In other words, the presence of significant dissociative symptoms (discussed below) may predict a subsequent diagnosis of PTSD.

Like PTSD, the diagnosis of ASD requires the person to have experienced a traumatic event that meets both the objective and subjective criteria discussed above (Criteria A1 and A2). Also like PTSD, the diagnosis of ASD requires at least one symptom of reexperiencing the trauma, such as through recurring thoughts, images, nightmares, flashbacks, and intense emotional distress upon exposure to reminders of the trauma (Criterion C); that the person displays marked avoidance of trauma-related thoughts or reminders of the trauma (Criterion D); and that the person displays symptoms of anxiety or increased arousal, such as sleep problems, irritability, poor concentration, hypervigilance, and exaggerated startle (Criterion E). As with other DSM diagnoses, the disturbance must cause clinically significant distress or functional impairment (Criterion F) and the disturbance is not due to the effects of a physiological substance or general medical condition (Criterion G), and not better accounted for by another disorder. The two features that differentiate the ASD diagnosis from PTSD are 1) the requirement for ASD that the individual experience either during the traumatic event or in its aftermath, at least three of five dissociative symptoms (Criterion B; numbing/detachment, reduced awareness of one's surroundings, derealization, depersonalization, and dissociative amnesia), and 2) the duration criterion (Criterion

H), which specifies the disturbance must last at least two days but last no more than four weeks, and must occur within four weeks of the trauma. DSM-IV is explicit that either the symptoms must "resolve within four weeks after the conclusion of the traumatic event or the diagnosis is changed."

As Harvey and Bryant have discussed in detail,[12,13] the addition of ASD to DSM-IV has engendered considerable controversy. For example, the question has been raised whether it is justifiable to distinguish between two diagnoses that share symptoms on the basis of duration of the symptoms. On one hand, including the diagnosis would potentially facilitate patients with PTSD-like symptoms in receiving early interventions that may reduce the duration of those symptoms and prevent the development of chronic PTSD. On the other hand, the symptom duration criterion was introduced in the PTSD diagnosis specifically to prevent the pathologizing of what may be normal and transient reactions. The concern about pathologizing transient reactions is of particular concern given that ASD was added to the DSM without compelling evidence of its utility in predicting PTSD or for the centrality of dissociation in the development of PTSD.

Inclusion of ASD in DSM-IV does, however, seem to have had the positive effect of stimulating research that addresses the issues raised above. In one such study, Harvey and Bryant[14] assessed 92 consecutive motor vehicle accident victim admissions (ages 16–65) to a major trauma hospital for ASD symptomology. All initial assessments took place within four weeks of the accident and the average time between the accident and the initial assessment was 6.85 days (standard deviation was 5.81 days). Seventy-one of the participants were also assessed for PTSD six months later. The researchers utilized a tripartite classification for either ASD or PTSD at each of the two assessments: Full syndrome (meets all criteria for ASD at the initial assessment or meets all criteria for PTSD at the follow-up assessment), subclinical (meets criteria for four of the five ASD symptom clusters, or two of the three PTSD symptom clusters at the corresponding time point), or no diagnosis. Among participants with subclinical ASD, 78.9 percent failed to meet the requirement of at least one dissociative symptom, whereas among participants with subclinical PTSD, 100 percent failed to meet the requirement of at least three avoidance symptoms.

The utility of the ASD diagnosis was strongest for the cases in which (1) full ASD criteria were met and (2) cases where the person did not meet criteria for even subclinical ASD. Specifically, among participants meeting full ASD criteria at the initial assessment, 77.8 percent met full criteria for chronic PTSD at the follow-up assessment and 22.2 percent did not meet criteria for even subclinical PTSD. Among participants who did not meet criteria for even subclinical ASD at the initial assessment, 87.2 percent did not meet criteria for even subclinical PTSD at the follow-up assessment and only 4.3 percent met full criteria for PTSD. The utility of the ASD diagnosis was less clear in cases of subclinical ASD. Specifically, among participants with subclinical ASD at the initial assessment, 60 percent met full criteria for chronic PTSD at the follow-up assessment, 20 percent met criteria for subclinical PTSD, and 20 percent did not meet criteria for even subclinical PTSD. Of theoretical significance is the fact, reported above, that the majority of participants meeting criteria for subclinical ASD had failed to meet the dissociation criteria, raising into question the centrality of dissociation in the ASD construct. Analyses conducted to evaluate the positive and negative predictive power for each of the ASD criteria (A-E) in predicting PTSD found strongest positive predictive power for the dissociative cluster (0.71), followed by reexperiencing and avoidance (0.52 for each), arousal (0.31), and exposure to trauma (0.27). Negative predictive power was higher than positive predictive power for all symptom clusters, with values ranging between 0.86 and 0.94, and negative predictive power for dissociation (0.86) was numerically lower than for the more characteristic "PTSD symptom clusters" of reexperiencing (0.93), avoidance (0.93), and arousal (0.94).

In summary, individuals who meet full ASD criteria are highly likely, although not inevitably, to develop chronic PTSD in the absence of appropriate treatment; individuals who do not meet criteria for even subclinical ASD are highly unlikely, although not entirely, to develop chronic PTSD or even subclinical PTSD; and individuals meeting criteria for all ASD symptom clusters but one are somewhat more likely than not, but again not inevitably, to subsequently develop either chronic or subclinical PTSD. Overall, there is greater negative predictive power for the ASD diagnosis than positive predictive power. In other words, absence of significant symptoms of ASD in the aftermath of a traumatic event is a better predictor of subsequent outcome (absence of PTSD) than is their presence. In addition, while the dissociative symptom cluster may have higher positive predictive value than other symptom clusters, their presence is not necessary for the development of chronic PTSD.

Translating the above findings into clinical guidelines, it would seem appropriate that individuals meeting full criteria for ASD at least one week after the trauma be offered treatment (if the appropriate services are available) and that those not meeting criteria for even subclinical ASD be educated that treatment is probably unnecessary

unless their symptoms worsen. For individuals meeting criteria for subclinical ASD, it would seem reasonable to either offer treatment or recommend a series of follow-up visits to monitor the course of their symptoms so that treatment may be initiated for those who do not show a pattern of natural recovery. Empirical support for specific psychological and pharmacological interventions for the treatment of ASD/prevention of chronic PTSD, as well as the treatment of chronic PTSD, will be covered in a subsequent article.

PTSD AND PSYCHIATRIC COMORBIDITY

Like many psychiatric disorders, there is a high degree of comorbidity between PTSD and other psychiatric disorders. In the NCS,[5] for example, 79.0 percent of the women and 88.3 percent of the men with a lifetime diagnosis of PTSD also had a lifetime diagnosis of one or more Axis I disorders, particularly mood disorders, such as major depression (48.5% of women and 47.9% of men with PTSD also had major depression) and dysthymia (23.3% and 21.4% for men and women, respectively), abuse or dependence on alcohol (27.9% and 51.9%) or other drugs (26.9% and 34.5%), and other anxiety disorders including phobias (29.0% and 31.4%), social anxiety disorder (28.4% and 27.6%), generalized anxiety disorder (15.0% and 16.8%), agoraphobia (22.4% and 16.1%) and panic disorder (12.6% and 7.3%). Additional analyses of the temporal order of exposure to trauma, developing PTSD, and developing other psychopathology suggests that non-PTSD psychopathology is a risk factor for both subsequent exposure to trauma and the development of PTSD in response to trauma and the greater number of prior disorders the greater the risk for both exposure to trauma and the development of PTSD. Thus, an individual with an extensive prior history of psychiatric problems who then experiences a traumatic event may be particularly vulnerable to the development of PTSD.

Prior trauma and the development of PTSD may also be risk factors for subsequent exposure to additional traumas as well as the development of other psychopathology, particularly in the case of the substance abuse disorders. It has been hypothesized, for example, that alcohol and substance use/abuse in many cases may represent a person's attempt to "self-medicate" their symptoms of PTSD. However, substance use/abuse was one of the disorders found in the NCS to increase risk for exposure to traumatic events and, among those exposed to trauma, to increase risk for the development of PTSD. Thus, the combination of these two effects may serve to create a vicious cycle among exposure to trauma, development of PTSD, and substance use.

Partial support for the vicious cycle hypothesis comes from the previously mentioned NWS survey. Kilpatrick, et al.,[15] investigated the temporal relationships between exposure to violent assault and substance use in a large subgroup (N=3,006) of women from the NWS who completed the initial interview and a follow-up assessment three years later. Even after statistically controlling for demographic variables that were found to be risk factors for experiencing a violent assault (age, race, and education) as well as prior assault (also a known risk factor for subsequent assault), "hard" drug use (but not exclusive use of alcohol) at the initial interview nearly doubled the risk for exposure to a violent assault during the follow-up period. Similarly, even after controlling for the same demographic variables in the previous analysis (age, race, and education) as well as alcohol or drug use at the initial assessment, the occurrence of an assault during the follow-up period nearly tripled the use of alcohol at the follow-up assessment and nearly doubled the use of drugs. Unfortunately, these authors did not investigate whether any of these reciprocal effects of alcohol and drug use with trauma exposure were mediated by the development of PTSD. Nonetheless, it is clinically relevant to be aware that alcohol and substance abusing patients are at elevated risk for exposure to trauma, and therefore at elevated risk for the development of PTSD, and patients with PTSD are at elevated risk for developing alcohol substance use problems.

ASSESSMENT: GENERAL CONSIDERATIONS

The assessment of PTSD and ASD requires at minimum an assessment of the person's trauma history, obtaining information on both the objective features of the trauma(s) (i.e., Was the person exposed to an event involving real or threatened injury or death to self or others?), and the person's subjective reaction (i.e., Did the person respond to the event with intense fear, terror, horror, or helplessness?); the person's current symptoms (i.e., Given a qualifying traumatic event, does the person meet the remaining symptom, duration, and functional impairment criteria for ASD or PTSD?); and, because of the presumed etiological role of trauma in the development of PTSD, the temporal relationship between the traumatic event and the person's symptoms (i.e., Did the trauma precede onset or exacerbation of the patient's symptoms?). In addition, because of the high comorbidity of PTSD with other psychiatric disorders, it is often helpful to evaluate the person for other disorders known to occur with high frequency in those with PTSD, particularly mood disor-

ders, other anxiety disorders, and alcohol/substance use disorders.

In principle, each of these content areas can be assessed through clinician interviews, self-report measures, or a combination of the two. In general, clinician administered interviews are considered the "gold standard" in research. In part, this is because it is assumed that clinicians will have a better understanding of the diagnostic criteria and will better able to judge whether or not a particular patient complaint falls within the category. For example, DSM differentiates recurrent, intrusive, distressing thoughts or recollections about the trauma (Criterion B1) from flashbacks (Criterion B3). The difference between these two symptoms is that flashbacks have a quality of feeling as though it is happening right now, whereas intrusive recollections are clearly recognized as a memory for a past event. Patients, however, may not make this differentiation and, as a result, may rate the same event as two separate symptoms and thereby elevate the overall severity score. Similarly, patients who wake up from nightmares may "double code" the same sleep disturbances caused by the nightmares, once in response to the question about recurrent nightmares (Criterion B2) and again in response to questions about sleep disturbance (Criterion D1). As a final example of this difficulty, patients may have gaps in their memory for important details of the traumatic event, but not all such instances will meet the criteria for dissociative amnesia (Criterion C3; see greater discussion of dissociative amnesia in the DSM IV on pages 478–481, and McNally's review on "Remembering Trauma"[16]). For example, patients who lose consciousness during the trauma or were under the influence of drugs or alcohol may have gaps in their knowledge for what happened, but such gaps may be due to either a failure to encode the relevant memory or normal sources of forgetting, rather than the kind of cognitive avoidance mechanism envisioned in the diagnostic criteria. The primary disadvantage of clinician-administered measures is that they can be time consuming to administer. Self-report measures, which are often validated against interview measures, have the advantage that they can be mailed to patients ahead of time and filled out at their leisure or completed while waiting to see the clinician.

With regard to assessing PTSD/ASD and associated psychopathology, some assessment measures provide primarily a dichotomous diagnostic decision (meets criteria, does not meet criteria) with limited information about severity, whereas others provide dimensional information on symptom severity, and still others will be able to provide both types of information. With regard to offering patients information about prognosis, monitoring natural recovery, or evaluating treatment response, dimensional assessment utilizing reliable and valid assessment instruments is frequently more helpful than simple diagnostic decisions and clinician impressions of severity as they provide greater information, are more sensitive to change (either worsening or improving), and treatment effects observed in the clinic can be compared with treatment effects reported in the research literature to help the clinician set reasonable expectations with the patient and for both the clinician and the patient to understand how their symptom level or treatment response compares to that of others. Accordingly, we recommend clinicians incorporate the use of formal assessment instruments into their practice and, to this end we provide a brief review of commonly used assessment instruments. For even greater detail on the assessment of psychological trauma and PTSD, the interested reader is referred to Wilson and Keane.[17] Another excellent resource on assessment is the assessment web page on the National Center for PTSD website,[18] which contains information on several of the assessment instruments discussed below as well as many other instruments not covered in this review, along with contact infor-

The **assessment of PTSD and ASD** requires at minimum an assessment of the person's trauma history and the person's subjective reaction, the person's current symptoms, and the temporal relationship between the traumatic event and the person's symptoms.

mation to request copies of several of these and related measures.

ASSESSING TRAUMA

Several instruments have been developed to assess for the experience of traumatic events that vary substantially in their level of specificity and comprehensiveness about various types of traumas. For example, the PTSD module of the Structured Clinical Interview for DSM IV (SCID-IV[19]) takes a fairly open-ended approach to asking about trauma, supplemented by several examples, but falling short of directly inquiring about specific types of traumas. Note the following example:

> *Sometimes things happen to people that are extremely upsetting—things like being in a life-threatening situation, such as a major disaster, a very serious accident or fire; being physically assaulted or raped; seeing another person killed or dead, or badly hurt; or hearing about something horrible that has happened to someone you are close to. At any time during your life, have any of these kinds of things happened to you?*

The advantage of such an open-ended approach to assessing for potentially traumatic events is that it does not require the patient's experience to fit into a predetermined mold and instead permits the patient to report whatever experiences they have had and the interviewer, through follow-up questioning, can elicit information to determine if the event meets both of the objective threat and subjective reaction criteria to qualify as a traumatic event. The disadvantages, however, are 1) such an approach provides little context for assessment by way of explaining the nature of traumatic events so that intent of the questions will be clear to the patient and help to focus the discussion on the kinds of events of interest; and 2) the range of examples cited fails to include several types of events that are potentially traumatic events but, for one reason or another, the patient may not report to the interviewer, such as sexual assaults that fall short of the patient's definition of rape because of who the perpetrator was (e.g., the patient's intimate partner) or because the act did not involve intercourse, childhood physical abuse that may be construed by the patient as having been "discipline," or experiencing a life-threatening illness.

Contrast the approach taken by the SCID with that taken in the epidemiological NWS, in which the researchers were specifically interested in the prevalence of violent crime, which is illustrated by how they assessed for instances of rape. Note the following example:

> *Another type of stressful event that many women have experienced is unwanted sexual advances. Women do not always report such experiences to the police or other authorities or discuss them with family or friends. The person making the advances isn't always a stranger, but can be a friend, boyfriend, or even a family member. Such experiences can happen at any time in a woman's life—even as a child. Regardless of how long ago it happened or who made the advances, has a man or boy ever made you have sex by using force or threatening to harm you or someone close to you? Just so there is no mistake, by sex we mean putting a penis in your vagina.*[4]

Similarly worded questions are used to ask about oral sex (coerced performance or receipt), anal sex, and other penetration of the vagina or anus by fingers or objects, all of which would meet the legal definition of rape by federal law but that may not always be identified as such by the victim. Additional questions with a similar level of specificity were used to ask about non-sexual assault and other potentially traumatic events. The key here is to ask clear operationally defined and, in the case of interpersonal violence, behaviorally specific questions instead of relying on the patient's implicit definitions of certain terms, such as rape and sex.

Specific potentially traumatic events that are covered in most of the trauma-screening measures used in clinical research include rape; other forms of sexual assault (e.g., childhood sexual abuse); simple (i.e., without the use of a weapon) and aggravated (i.e., involves the use of a weapon) assault; childhood physical abuse, including instances of physical punishment that were severe enough to cause welts or bruises, or require medical attention; motor vehicle accidents and other kinds of accidents (e.g., industrial accidents, recreational accidents); combat or exposure to a military war zone; natural or man-made disasters that involve injury, loss of life, or loss of physical resources (e.g., loss of one's house to a fire); witnessing violence, especially violence between family members, or seeing someone badly injured or killed; the sudden loss of a close friend or family member to homicide, suicide, accident, or illness; and developing a life-threatening illness.[20]

ASSESSING PTSD SYMPTOMS

There are numerous reliable and valid instruments, both clinician administered and self-reported, that can be used to obtain diagnostic information and provide some index of severity. For example, the SCID[19] has the clinician ask the patient about each of the 17 symptoms of PTSD, duration of disturbance, and functional impairment, and then to judge whether each of the symptoms and other criteria is absent, subthreshold, or at/above threshold. Severity of the disorder is coded as mild (few, if any, symptoms in excess of those required to

make the diagnosis are present, and symptoms result in no more than minor impairment), moderate (symptoms or functional impairment between 'mild' and 'severe'), or severe (many symptoms in excess of those required to make the diagnosis, or several that are particularly severe, are present, or result in marked impairment.) Several other measures have the clinician or patient rate the severity and/or frequency of each symptom according to some kind of Likert-type scale yielding a broader range of severity scores. One of the most commonly used measures in research, indeed often referred to as the gold standard in PTSD assessment, is the Clinician Administered PTSD Scale (CAPS).[21] The administering clinician asks the patient about the frequency and severity of each symptom and then makes separate ratings for frequency and severity on a 0 to 4 scale, yielding a total score that ranges between 0 to 136. Several treatment outcome studies that have used the CAPS as the primary outcome measure require a minimum score of 50 for entry into the study and a commonly agreed upon score reflecting a good outcome is a score less than 20. The Davidson Trauma Scale (DTS)[22] is a similarly designed self-report measure that has the patient separately rate the frequency and severity of each PTSD symptom on a 0 to 4 scale, and thus yields scores with the same range as the CAPS.

The PTSD Symptom Scale Interview (PSS-I) and PTSD Symptom Scale Self-report (PSS-SR) are a pair of measures that combine information about frequency and severity of each symptom which is then rated on a 0 to 3 scale, thus yielding a total score that ranges between 0 to 51.[23] The interview and self-report versions of the PSS are highly correlated with one another (r=0.80[23]), and the PSS-I is highly correlated with the CAPS (r=0.87) but requires approximately half the time to administer.[24] Brewin and colleagues[25] have modified the PSS-SR for use as a brief screening instrument to detect likely cases of PTSD. This scale, called the Trauma Screening Questionnaire (TSQ), consists of 10 items from the PSS-SR that are rated by the patient in simple yes or no fashion based on whether or not the patient experienced any of the items at least two times in the past week. Using the cut-off score of 6 or greater, TSQ was found to have excellent sensitivity, specificity, and power (index values ranging between 0.76–0.91 across two samples) relative to a PTSD diagnosis derived from a clinician interview with the CAPS.[21] The Post-Traumatic Stress Diagnostic Scale[26] is a commercially available revision of the PSS-SR that provides a comprehensive self-report assessment of all DSM-IV PTSD criteria including trauma history, determination of whether the event meets both the objective and subjective criteria to qualify as a traumatic event, and assessment of the symptom, duration, and impairment criteria. Whether assessing PTSD severity by interview or self-report, it is common to use the last month as the time frame for the initial assessment to insure that duration criteria has been met. However, it is common to reduce the time frame to the last one or two weeks in order to assess symptom change over the course of treatment, particularly when visits are scheduled relatively close together.

One final self-report measure that deserves mention because of its good psychometric properties and common use in both research and clinical practice is the Impact of Event Scale (IES).[27] It was developed more than a decade prior to the introduction of PTSD in DSM III[1] based on Horowitz's[28] theory of the stress response syndrome in which he hypothesized that the normal stress reaction consists of a person alternating between intrusive states, characterized by many of what we now call the reexperiencing and some of the hyperarousal symptoms of PTSD, and denial states, characterized by many of what comprise the avoidance/numbing symptoms of PTSD. The IES is a 15-item questionnaire in which each item is scored for frequency of the symptom in the past week following the unusual convention of 0=not at all, 3=moderate, and 5=severe and yields separate scores for the seven-item intrusion and eight-item avoidance subscales. Because the IES items do not entirely correspond with current DSM symptom criteria for PTSD, this instrument cannot be used to derive diagnostic information. However, it has been found in several outcome studies to be sensitive to treatment-related changes in post-trauma symptomology following psychotherapy[29] and pharmacotherapy.[30] Weiss and Marmar[31] have developed a revised version of the IES in which they added several items to fully cover the hyperarousal symptoms, so the measure now yields three subscales that strongly (but not entirely) resemble the DSM symptom structure, and they recommended replacing the 0, 1, 3, 5 scoring scheme with a more conventional 0 to 4 scheme.

DIAGNOSTIC INSTRUMENTS FOR ASSESSING PTSD SYMPTOMS

The Structured Clinical Interview for DSM IV (SCID-IV)
The Clinician Administered PTSD Scale (CAPS)
The Davidson Trauma Scale (DTS)
The PTSD Symptom Scale Interview (PSSI)
The PTSD Symptom Scale Self-Report (PSS-SR)
The Trauma Screening Questionnaire (TSQ)
The Post-Traumatic Stress Diagnostic Scale
The Impact of Event Scale (IES)

ASSESSING ASD

Because of the relatively recent addition of ASD, there are relatively few measures of acute stress that have been validated against DSM-IV criteria. At present, the best available instruments for the purpose of diagnosing and quantifying the severity of ASD consist of a pair-related measures developed by Bryant and colleagues: The Acute Stress Disorder Interview (ASDI)[32] and the Acute Stress Disorder Scale (ASDS[33]), both of which are reprinted in Bryant and Harvey's book, *Acute Stress Disorder: A Handbook of Theory, Assessment, and Treatment*,[13] along with instructions for scoring and interpreting the results. The ASDI is a clinician administered interview that covers a A–H diagnostic criteria in simple yes/no format and thus yields information about the diagnosis but not symptom severity, although it could easily be combined with a simple rating of severity as is done for PTSD on the SCID[19] (see discussion above). The ASDS is a self-report measure of the ASD symptoms (Criteria B–E) on which the patient reports severity of each symptom "since the event" on a 1 (not at all) to 5 (very much) scale. This format permits determination of whether the patient meets symptom criteria for ASD (remaining criteria would need to be assessed by another measure or additional questions) and yields a severity index ranging between 19-95, with a cut-off score of >56 found to correctly classify 91 percent of those subsequently diagnosed with PTSD and 93 percent of those who did not have PTSD.

ASSESSING COMORBID CONDITIONS AND ASSOCIATED PSYCHOPATHOLOGY

The SCID[19] is a structured clinical interview that provides for a comprehensive diagnostic assessment of Axis I disorders. The primary limitation is that, depending on the complexity of patient's problems, it can take several hours to complete. To facilitate its administration, the SCID does contain a series of 12 screening questions that cover alcohol and substance use disorders, the anxiety disorders (except for PTSD and ASD), and eating disorders. These questions were designed to have high sensitivity so that a clear "no" response to a screening question is unlikely to result in missing a potential problem. However, the items also have relatively low specificity, and thus a "yes" response to a screening item requires follow-up questions to protect against false positives. The MINI[34] is a briefer instrument that covers the major Axis I disorders (mood disorders, anxiety disorders except for ASD, alcohol and substance use disorders, eating disorders, and psychotic symptoms) along with an optional module for assessing antisocial personality disorder.

Both the SCID and MINI yield good diagnostic information but only limited severity information. Therefore, it is often helpful to supplement a thorough diagnostic interview with severity measures. In general, the two most relevant domains to assess in addition to PTSD/ASD are depression and anxiety, as both are typically elevated among individuals with PTSD/ASD even if they don't meet diagnostic criteria for a formal mood disorder or other anxiety disorders. The Hamilton Rating Scales for depression[35] and anxiety[36] are brief clinician administered rating scales commonly used in both research and clinical practice. While neither of these scales can yield a formal diagnosis of depression or any specific anxiety disorder, they have been found to be sensitive to psychological and pharmacological treatment-related changes across a variety of psychiatric conditions. Well-validated self-report measures of depression and anxiety that are widely used in research and clinical practice and have been found to be responsive to treatment-related changes are the Beck Depression Inventory[37] and the state-anxiety portion of the State-Trait Anxiety Inventory.[38]

> The **best available instruments** for the purpose of diagnosing and quantifying the severity of ASD consist of a pair of related measures: The Acute Stress Disorder Interview (ASDI) and the Acute Stress Disorder Scale (ASDS).

CONCLUSIONS

PTSD is a common and often chronic condition that results in significant impairment and is associated with high rates of psychiatric comorbidity, particularly for depression, other anxiety disorders, and alcohol/substance use and abuse. By convention, PTSD cannot be diagnosed until a minimum of 30 days after the traumatic

event because longitudinal studies have shown that PTSD-like symptoms are transient for most people following exposure to a trauma and will resolve without need for intervention. By contrast, individuals with PTSD three months or more after the trauma (chronic PTSD) are unlikely to experience symptom resolution without intervention. The diagnosis of acute stress disorder (ASD) is a recent attempt to identify, within the first 30 days following exposure to trauma, those individuals who are most likely to develop chronic PTSD in order to facilitate early intervention. The research to date on the utility of the ASD diagnosis has found it to be highly predictive of PTSD status 3 to 6 months after the trauma in cases where either full ASD criteria are met (high likelihood of having PTSD) or when at least two ASD criteria are not met (low likelihood of having PTSD). More difficult to predict is outcome for the large number of cases of "subthreshold" ASD, in which an individual meets all but one of the symptom criteria for ASD. Several interview and self-report instruments have been developed and validated for the assessment of PTSD, ASD, and common associated psychopathology, which yield helpful information in the diagnosis and treatment of post-trauma stress reactions. A subsequent paper to be published in an upcoming issue of this journal will review the empirical status of psychological and pharmacological treatments for PTSD and ASD.

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